

# INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

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P206

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UNKNOWN

Applicant(s)

ANNA YEN, ET AL

Filing Date

UNKNOWN

Group Art Unit

UNKNOWN

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		4,357,193	11/2/82	T. W. McGANN, ET AL.	156	286	
		4,944,824	7/31/90	D. GUPTA	156	286	
		5,618,606	4/8/97	G. O. SHERRICK, ET AL.	428	113	
		6,017,484	1/25/2000	H. P. HALE	264	510	
		WO 01/00405 A2	1/4/2001	XU, GUO, FENG			

## FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO

## OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)


EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

## **PRIOR ART STATEMENT**

### **1. Patent No: 4,357,193. METHOD OF FABRICATING A COMPOSITE STRUCTURE.**

**BY McGann, et al.**

A vacuum non-autoclave process to de-bulk a lay-up prior to curing is disclosed. The lay-up is placed in a rigid chamber, heated to a temperature wherein the lay-up out gases, while a vacuum is drawn. The patent does not address co-cured honeycomb sandwich with void-free face-sheets.

### **2. Patent No: 4,944,824. PROCESS FOR PREPARATION OF TOOLING OF CARBON FIBER REINFORCED POLYIMIDE FOR COMPOSITE MANUFACTUR by D Gupta.**

A vacuum is used to draw off volatile components from a lay-up of pre-pregs. The de-bulking is accomplished in steps. That pre-preg sheets are laid up in stages and de-bulked. The patent involves high volatile content polyimides and draws off the volatiles rather than minimizing outgassing and uses a subsequent autoclave to cure. It does not address co-cured honeycomb sandwich with void-free face sheets cured without the use of an autoclave.

### **3. Patent No.: 5,618,606. PROCESS FOR BONDING STAGED COMPOSITES WITH A COBONDED STAGED ADHESIVE AND ARTICLE by G. O Sheerrick et al.**

The patent uses vacuum for staging and co-bonding the adhesive and a composite to form a patch, which can be applied to a damaged substrate for repair. It does not address co-cured honeycomb sandwich with void-free face sheets.

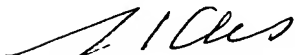
### **4. Patent No.: 6,017,484. METHOD FOR MANUFACTURE OF MINIMUM POROSITY, WRINKLE FREE COMPOSITE PARTS by H. P. Hale**

The patent applies to thermoplastic rather than thermoset composites. It uses a stepped two-chamber pressure reduction rather than constant full vacuum with a single vacuum bag. It does not address co-cured honeycomb sandwich with void-free face sheets.

5. Patent No.: WO 01/00405 A2. MANUFACTURE OF VOID FREE LAMINATES AND USE THEREOF by Xu et al.

The invention uses partially impregnated unidirectional prepreg tapes to produce void-free laminates under vacuum only cures. It references sandwich on p 14, Para 5-10 and honeycomb core in p 59, Para 63. The patent does not use a separate adhesive layer or layers to form honeycomb sandwich structure. The subject invention uses a multi-step cure to stabilize the adhesive before curing the prepreg.

Respectfully submitted;

  
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